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Syntactic constraints on discourse structure: the case of *it*-clefts*

JUDY DELIN and JON OBERLANDER

Abstract

In this paper, we present an account of the interpretation of it-cleft constructions that attempts to draw together the apparently diverse factors of aspect, information structure, syntax, and presupposition. We begin with the observation (due to Prince 1978) that some clefts have the effect of "backgrounding" the information they convey, and that, in addition, clefts appear to indicate that this information is in some sense "known fact." We also add the observation that in some contexts clefts can induce temporal reversals in the interpretation of the narrative order of events and note that clefts appear to limit the range of coherence relations that can be inferred between their content and that of the preceding discourse. We argue that these effects arise out of the way cleft content is incorporated into the existing discourse context; further, we suggest that the integration of cleft content is further influenced by the individual semantic, pragmatic, and informational profile of the cleft concerned. Our account draws on the notion of clefts as state-making devices: that is, they introduce an eventuality description with stative aspect, due to the presence of copular be as main verb. We look at the implications this has for discourse processing, showing how the interpretation of the cleft's stative main verb as temporally overlapping an established reference time has effects on the integration of cleft content into the discourse model. While this aspectual profile is common to all clefts, integration is further influenced by whether the cleft's presupposition contains material already known to the hearer (topic) or new (comment). While we cannot provide a complete model of discourse and temporal relations, we hope to show that the specific discourse relations taken to hold between incoming and existing information depend on a subtle interaction between a range of factors that influence the integration process.

1. Introduction

This paper represents a case study in modelling both temporal and structural aspects of discourse. In it, we look at how *it*-clefts, with their rich array of semantic and pragmatic features, can be accounted for in an abstract model of discourse processing. In particular, our account aims to explain the following specific observations:

- clefts are not a homogeneous group: they differ in their information structure and function (cf. Prince 1978; Hedberg 1990; *inter alia*);
 - the different cleft types seem to be tied to differing discourse effects;
 - all clefts, however, are presuppositional;
 - clefts represent an operation on semantic content that can be viewed in terms of the introduction of a stative eventuality, due to the presence of the copular verb;
 - clefts are explicable not only in terms of notions like focus and presupposition, but in terms of less well understood discourse effects such as backgrounding and the “known-fact effect” observed by Prince (1978).
- In addition, however, there are general constraints on the discourse relations cleft content can enter into; see Delin (1989), Delin and Oberlander (1991, 1992).

We suggest in this paper that, given the necessary background, these apparently diverse observations can be located coherently within a theory of cleft interpretation.

In preliminary reports on this research (see Delin and Oberlander 1991, 1992) we have taken the view that clefts act as *stativizing* devices: that is, that they present their entire content as if it were a stative eventuality description (or complex of such descriptions). We have since realized, however, that it is not the entire cleft content that is made stative: the stative effect is confined, as might be expected, to the eventuality description due to the copular verb. The aspectual profile of the other reported eventualities remains unchanged. What is significant, however, is that the state description due to the copula is the MAIN eventuality of the sentence, and it is with respect to this that the entire content of the cleft is integrated into a model of the discourse. In this paper, we pursue this view, looking at how the two types of *it*-cleft described in the literature (*topic-clause* and *comment-clause* clefts, to adopt Hedberg’s [1990] terms) are treated in processing terms, on account of their differing information structure. We show how aspectual interpretation works for each type of cleft, the effect this has on integration into the discourse model, and how both together serve to constrain the kinds of coherence relation that can be inferred to hold between the discourse segments thus integrated. In particular, we concentrate on explaining (i) the limited range of discourse

relations that information supplied by means of a cleft can support; and (ii) the observations due to Prince (1978) that clefts apparently serve the purpose of “backgrounding” the information they convey and of indicating that this information is “known fact.” While it is by no means perfect or complete, we hope that the study may advance our understanding of discourse processing through a close description of particular features of the data.

To frame our observations on discourse structure and coherence relations, we have attempted to use a neutral and transparent notation that owes something to that of Polanyi and Scha (Polanyi 1986, 1988; Scha and Polanyi 1988), augmented with coherence relations of our own. Our study has been based on naturally occurring data, drawn primarily from the Lancaster–Oslo–Bergen Corpus of Written English.¹ Supplementary data, both written and spoken, are taken from the clefts literature, in particular Prince (1978) and Hedberg (1990), and from the clefts corpus described in Delin (1989).

1.1. *The structure of the paper*

In the rest of this section, we go on to describe the precedents for assuming that there are two kinds of *it*-cleft and describe the features of each. In section 2, we explain the discourse functions of each kind of cleft, showing how each supports different inferences about the coherence relations that can hold between its content and that of the preceding discourse. Section 3 goes on to describe the basics of aspectual semantics that are needed to understand our account and describes the aspectual profile of the content of clefts. In section 4, we look at how cleft content is integrated into discourse structure. In section 5 we use the discourse and temporal descriptions just established to explain the “background” and “known-fact” effects of using a cleft, and we address some puzzles of our own. These relate to the ability of some clefts to reverse temporal flow in discourse, and the ability of others to generate contrastive effects. Finally, in section 6, we provide a summary, a discussion of the implications of the work, and some suggestions for further research.

1.2. *Two types of it-cleft*

While many of our observations apply generally to *it*-clefts, we will need to make use of a distinction between two classes of *it*-cleft, differing in function and to some extent in structure, that have been observed in the

literature. The first group correspond to what Prince (1978) terms the *stressed-focus* *it*-clefts. These have a nuclear accent on the clefted constituent, and a weakly stressed cleft clause (Prince 1978: 896ff.), as follows (Prince's example [42a]):

- (1) It's HERE I look like Mina Davis.

The clefted constituent bears new, often contrastive information, and the cleft clause bears known or old information (and as a result, may often be elided or simply deleted altogether).

Hedberg (1990: 135ff.) refers to this type as *topic-clause* clefts. Hedberg's notion of topic is based on the idea that the topic encapsulates what the sentence is "about," and that individual sentence topics determine what is the topic of the discourse at the time at which they occur. Hedberg (1990: 20) further notes that topics are "given" in the discourse, in the sense that they conform to Gundel's (1985) "topic-familiarity condition." This is stated as follows:

Topic-familiarity condition:

An entity, *E*, can successfully serve as a topic, *T*, iff both speaker and addressee have previous knowledge of or familiarity with *E*.

Hedberg (1990: 10) follows Gundel (1985, 1988) in defining "topic" and "comment":

Topic:

An entity, *E*, is the topic of a sentence, *S*, iff, in using *S*, the speaker intends to increase the addressee's knowledge about, request information about, or otherwise get the addressee to act with respect to *E*.

Comment:

A predication, *P*, is the comment of a sentence, *S*, iff, in using *S*, the speaker intends *P* to be assessed relative to the topic of *S*.

There exists a second cleft type, referred to by Prince as the *informative-presupposition* (IP) cleft and by Hedberg as the *comment-clause* cleft. This has a recognizably different stress pattern and information structure. Examples are as follows (Prince's [41b] and [46a]):

- (2) The leaders of the militant homophile movement in America generally have been the young people. *It was they who fought back during a violent police raid on a Greenwich Village bar in 1969*, an incident from which many gays date the birth of the modern crusade for homosexual rights.
- (3) It was ten years ago this month that Irwin Vamplew was bopped

on the head by a nightstick while smashing windows in Berkeley in order to end the war in Vietnam.

In this type of cleft, the information borne by the clefted constituent is frequently old or anaphoric, while the cleft clause bears information that is new to the hearer. As a result, the cleft clause cannot be deleted, since it is the main information-bearing locus of the sentence. Usually, the clefted constituent is a subject NP or an adverbial of time, place, or manner, and the relativizer is not deletable (Prince 1978: 899).

Here, we adopt Hedberg's terms *topic-clause* (TC) and *comment-clause* (CC) to distinguish between the two cleft types where appropriate. We also follow Hedberg in using the term *clefted constituent* to refer to the element appearing immediately after the copula in the cleft (often referred to elsewhere as the "focus constituent"). The relative-clause-like constituent forming the remainder of the cleft is termed the *cleft clause*.

2. Clefts in discourse

In this section, we would like to examine some important discourse functions of clefts and outline some puzzles associated with them. While all *it*-clefts have many features in common, it seems that the distinction between the two types of cleft made above is amply justified by their different uses in discourse. Below, we draw attention to some common cleft functions and point out some particular factors in cleft interpretation we believe can be accounted for by a closer analysis of the relationship between aspectual information, discourse structure, and other, better-known, features of clefts.

One such feature, whose existence we treat as a basic assumption of this research, is that clefts require or convey some species of PRESUPPOSITION (see, for example, Keenan 1971; Chomsky 1971; Gazdar 1979; *inter alia*). We assume here that cleft content can be divided into two parts, presupposed and asserted, on the basis of their syntax. This division is unchanged by the information status (such as given, new, and so on) of the content of either part.² Similarly, it is often observed that cleft constructions serve to indicate that the clefted constituent is a UNIQUE or EXHAUSTIVE listing of the elements that can satisfy the predicate communicated by the cleft clause (cf. Halvorsen 1978: 15; Atlas and Levinson 1981; *inter alia*); this we take to be relatively uncontroversial. Both the notion of presupposition and the notion of uniqueness will be drawn upon in our subsequent discussion.

What we believe to be new about our account, however, is the promi-

nence it gives to the role of the cleft as a device for presenting information with a particular ASPECTUAL profile. Simple canonical noncleft sentences can be seen as presenting descriptions of states, events, and processes. A cleft presentation of comparable content not only conveys such descriptions (in presupposed form), but presents an ADDITIONAL state description, due to the presence of copular *be* as the main verb. It is our view that the presence of this copula, and the resulting stative aspect of the construction, has important semantic and pragmatic effects.

As the above discussion implies, we take clefts, like many other pragmatically marked syntactic constructions, to convey not a single semantic or pragmatic feature but a bundle of such features, acting jointly to determine the discourse functions a sentence type can serve. These features are not necessarily orthogonal: for example, it appears that presupposition, uniqueness, and stative aspect play a primary role in determining how discourse relations are constrained — that is, they account for the constraining effect. Whatever the relationships between the features, however, it seems plausible to assume that speakers choose a sentence type that best fits their conversational goals in a given context, and that a range of factors, rather than a single one, determines this choice.

2.1. *Topic-clause clefts in discourse*

Topic-clause clefts are often taken to be in some sense the “basic” type of *it*-cleft, possibly because the default articulation of citation forms tends to suggest this interpretation. Two particular discourse functions can be isolated for this type of cleft, and we will term these *question–answer* and *contrast*.

The question–answer relation is illustrated by (4) below:

- (4) A: So who broke this?
B: It was John who broke it.

In this case, the cleft provides the completion of an incomplete proposition — that is, one containing a variable. The second function, that of contrast, is similar, except that there are available in the discourse COMPETING instantiations for a variable, of which the cleft provides one. Contrast (cf. Leech 1981; Lyons 1977; for a discussion) can be described as a relationship of opposition or comparison between discourse elements, operating on the basis of some predicate. In the case of (5) below, a contrast holds between the clefted constituent *the angel* and a preceding element, *Boaz*. The predicate that provides the coherent relationship supporting the contrast can be given as *use this form of greeting*:

- (5) To this the reply is given that from the verse dealing with Boaz there is no proof of divine approval, only that Boaz used this form of greeting. But in the second verse *it is the angel that uses this form of greeting* and hence there is evidence of divine approval.

Of course, it is not always necessary for a cleft to be present in order for contrast to succeed. (6), the constructed noncleft equivalent of (5), demonstrates:

- (6) To this the reply is given that from the verse dealing with Boaz there is no proof of divine approval, only that Boaz used this form of greeting. But in the second verse *the angel uses this form of greeting* and hence there is evidence of divine approval.

However, in other cases, the contrastive effect appears to rely on the presence of the cleft. For example, contrastive (7), when declefted, results in the confusing (8):

- (7) Doubling the selling space to 700 square feet was not to be the greatest expense. *It was the new fixtures and fittings to fill this space that would be costly.*
- (8) ?Doubling the selling space to 700 square feet was not to be the greatest expense. *The new fixtures and fittings to fill this space would be costly.*

Likewise, when (9) is declefted, the result, (10), has lost contrast:

- (9) Quite a few of you have asked about tipping, and these days problems can arise. A nice old-fashioned housemaid, labelled by cap and apron, is easy enough; when you leave you will give her your little present as a thankyou for looking after you. *It is the "lady who obliges" that can confound you*; on that point, the simplest way is to quietly consult your hostess.
- (10) Quite a few of you have asked about tipping, and these days problems can arise. A nice old-fashioned housemaid, labelled by cap and apron, is easy enough; when you leave you will give her your little present as a thankyou for looking after you. *The "lady who obliges" can confound you*; on that point, the simplest way is to quietly consult your hostess.

In what follows, we take the view that contrast is a coherent relationship, and that special properties of the cleft and how its content is integrated into the discourse model allow contrastive effects to be retrieved. In particular, what is important is the cleft's capacity to promote particular attachments to the hierarchical discourse structure and discourage others. We will show that, in cases where the "default" discourse attachment

turns out fortuitously to be the correct one for the retrieval of the contrastive relationship, the cleft is not vital for contrast. In other cases, however, the cleft cannot be dispensed with, and this is where a nondefault attachment is required for contrast to work.

2.2. *Comment-clause clefts in discourse*

Two main observations, due to Prince (1978), have been made about the discourse effects of comment-clause clefts: that they are in some sense “backgrounding” devices, and that they convey information that is “known fact.” Below, we also add some observations of our own, expanding the notion of “backgrounding” to a more general coherence relation of which Prince’s data represent one subtype.

The “backgrounding” effect. Prince (1978: 902) points out that for examples like (11), the information conveyed is “background material ... subordinate in importance to what follows”:

- (11) *It is through the writings of Basil Bernstein that many social scientists have become aware of the scientific potential of sociolinguistics. ... Yet their popularity has often deformed Bernstein’s arguments; ... he has been made to say that lower class children are linguistically “deprived.” ... In fact, Bernstein’s views are much more complex than that. First. ...*

While the suggestion that information is “subordinate in importance” is intuitively plausible, it is possible to specify further what kinds of backgrounding appear to be taking place by further analysis of the data. Prince notes, for example, that the subordination relation involved is often (although not always) one of cause and effect, where the clefted proposition is often intended to be interpreted as the cause. She gives this example:

- (12) *Here ... were the ideas which Hitler was later to use. ... His originality lay in his being the only politician of the Right to apply them to the German scene after the First World War. It was then that the Nazi movement, alone among the nationalist and conservative parties, gained a great mass following and, having achieved this, won over the support of the Army, the President of the Republic, and ... big business — three “long-established institutions” of great power. The lessons learned in Vienna proved very useful indeed.*

Prince (1978: 902) explains the effect of the cleft in (12) as follows:

... If the third sentence of [12] read *Then, the Nazi movement ...*, it would tend to suggest a separate event, and we would lose the notion that it was all H's doing — a notion conveyed very strongly by the *it*-cleft's subordinating effect, and underlined (though still not asserted) by the last sentence (Prince 1978: 902).

Prince's suggestion, then, is that clefts can serve as suitable vehicles for delivering information that is backgrounded to the main flow of the discourse, or that is contingently related to it, by cause-and-effect.

In addition to the cause-and-effect relations noted by Prince, our own data reveal another, related "backgrounding" function: the use of clefts for a form of subordination that influences the interpretation of the content of the cleft in terms of the TEMPORAL development of the discourse. In (13), for example, an *it*-cleft is being used to introduce background information elaborating on the nature of a protagonist in the discourse (*Mr. Butler*). This is done by describing an event that he was involved in at some previous time:

- (13)
1. Mr. Butler, the Home Secretary, decided to meet the challenge of the "Ban-the-Bomb" demonstrators head-on.
 2. Police leave was cancelled
 3. and secret plans were prepared.
 4. *It was Mr. Butler who authorised action which ended in 32 members of the Committee of 100 being imprisoned.*
 5. The Committee's president and his wife were each jailed for a week.

The effect of the cleft is to cause the "background" information about the authorization of action to be interpreted as occurring PRIOR to the events introduced in lines 1–3 — the decision, the cancellation of leave, and the preparation of secret plans. A constructed noncleft version of the same discourse, however, does not support the same temporal interpretation. In fact, we can see that what we might term the temporally REGRESSIVE effect of the cleft is removed, creating a rather different effect. The result, (14), has the "authorization of action" described in the declefted sentence occurring in simple temporal progression from the "cancellation of police leave" — in other words, AFTER the events introduced in lines 1–3:

- (14)
1. Mr. Butler, the Home Secretary, decided to meet the challenge of the "Ban-the-Bomb" demonstrators head-on.
 2. Police leave was cancelled
 3. and secret plans were prepared.

4. Mr. Butler authorised action which ended in 32 members of the Committee of 100 being imprisoned.
5. The Committee's president and his wife were each jailed for a week.

The cleft therefore has a critical effect on the order in which the events reported are understood to have happened.

The "known-fact" effect. A further pragmatic feature belonging to clefts is suggested by Prince (1978), namely that *it*-clefts share a property that has been characterized as the *known-fact effect*. Prince states,

Their function, or at least one of their functions, is TO MARK A PIECE OF INFORMATION AS FACT, known to some people although not yet known to the intended hearer. Thus they are frequent in historical narrative, or wherever the speaker wishes to indicate that s/he does not wish to take personal responsibility for the truth or originality of the statement being made (Prince 1978: 899–900).

Prince proposes this description for clefts of both types, but it is clear to us that the effect is much stronger in the case of the comment-clause cleft. In these clefts, the speaker can introduce "new" information in the cleft clause, using the presuppositional nature of that part of the cleft to signal that the information is to be treated as if it had been there all along. A significant feature, then, is that the information must be regarded as not open to conversational negotiation. Delin (1992) proposed that a speaker who uses an *it*-cleft that conveys new information in the complement is indicating that the information being communicated did not originate with the speaker, and, while they may believe it themselves at the time of utterance, ultimate responsibility for the truth of the information rests elsewhere.

In topic-clause clefts, whether the known-fact effect may be present is difficult to determine, since a much stronger signal overrides it: the fact that the information borne by the cleft clause is already known and salient to BOTH speaker and hearer. It is not open to negotiation, but for a much more mundane reason than that the speaker is somehow "disclaiming" the information. Its nonnegotiability arises simply out of the fact that it is "given" — that is, it has already been heard and accepted by the interlocutors.

Below, we examine how backgrounding and the known-fact effect arise, looking closely at the interaction between cleft features such as presupposition and information structure and the way these influence the integration of cleft content into the discourse model. Particularly important in our account is the treatment of the stative nature of the cleft

copula. While a fully fledged integrated model of aspectual and temporal semantics and discourse structure has yet to be formulated, we hope to show for clefts at least the value of integrating temporal and aspectual information into the discourse model. This approach yields insights into cleft interpretation that a purely descriptive account does not and accounts for the phenomena outlined above in a coherent way.

The main points of our account are the following:

1. Clefts convey a presupposed state, event, or process (or complex of any or all of the three) that must be attached to the current model of the discourse at a point appropriate to its content.
2. Clefts additionally convey a further state description, due to the presence of the copula *be*, whose relation to previous content is negotiated in relation to the presupposed material.
3. The process of relating cleft state, presupposed material, and the discourse context is further influenced by the shared or nonshared status of the information borne by the cleft, and by other processes of inference.

3. Cleft content and aspectual type

Our main point is that the use of a cleft construction serves to present the main eventuality reported in the sentence as a state: the presence of the copular *be* as main verb ensures this. In order to appreciate this claim, it is first necessary to explore briefly what is meant by the distinction between states and other kinds of eventuality.³ Basically, we take the view that an utterance denotes at least one eventuality of some type. Importantly for us, the aspectual type will determine the temporal relation to other eventualities mentioned in a discourse. Although a range of eventuality types and subtypes has been suggested, the relevant distinction for current purposes is that between states and nonstates; in particular, between states and events. From Bach (1986: 6), paradigmatic cases of verb phrases exhibiting this distinction include the following:

States:

sit, be drunk, own *x*, love *x*

Events:

build *x*, walk to Boston, notice, reach the top

The aspectual class of an utterance is typically determined by the aspectual class of the lexical verb, by other elements within the verb phrase, by temporal adverbials with which the verb phrase cooccurs, and by the noun phrase itself. Linguistic context will also influence aspectual-class assignment. For example, a verb normally taken to denote a process,

such as (15a), can form part of a verb phrase denoting a protracted event, as in (15b); and in combination with certain noun phrases, the same verb phrase can form part of a sentence, as in (15c), denoting a habitual state:

- (15) a. ran
 b. ran to the station
 c. trains ran to the station

3.1. *Clefts as state-makers*

Various tests for stativeness have been proposed in the literature: Moens (1987: 96–104) surveys the various diagnostic tests that have been suggested. For our purposes, however, it is necessary simply to note that *be* is the paradigmatic state-describing verb, and it is this that we would like to focus on as crucial in the interpretation of the cleft construction, distinguishing it from its noncleft counterpart.

While the noncleft counterpart of any cleft sentence could of course describe an event, state, or process, or any complex combination of the three, the cleft serves to subordinate this content to the main state description. We can thus view a cleft as a syntactic vehicle for a semantic function, which cleaves an existing (simple or complex) eventuality description in two, presenting the state description introduced by the cleft copula as the main eventuality of the sentence. The relationship between the secondary eventuality and this main eventuality is similar to that between the eventuality described by a relative clause and its matrix's eventuality.

To illustrate, consider the examples below, variations on a passage of text from Paretsky (1992: 318):

- (16) a. I stirred the yolk up with the hash.
 b. The fries were golden-brown.
 (17) a. It was the yolk that I stirred up with the hash.
 b. It was the fries that were golden-brown.

(16a) and (16b) denote an event and a state respectively: the event of the speaker stirring the yolk; and the state of the fries being golden-brown. Now, consider the clefted versions of these sentences. (17a) denotes two eventualities: a state and an event, and (17b) denotes a pair of states. In each case, the state description due to the cleft structure is just the state of the entity (or set of entities) denoted by the clefted constituent *BEING* the element satisfying the predicate (state, event, or process) conveyed by the cleft clause. Therefore, (17a)'s eventualities are

the event of the speaker stirring some entity x , and the state of the yolk being that entity x , while (17b)'s eventualities are the state of some y 's being golden-brown, and the state of the fries being that set of entities. In each case, the main eventuality denoted by the cleft sentence is the state corresponding to the copular verb. The event in (17a), and the second state in (17b), are subordinate.

So, a cleft does not simply convert an event into a state; it *CREATES* a new state. We can therefore refer to a cleft sentence's *created state* (CS) and distinguish it from the *original eventuality* (OE). In the next section, we indicate how clefting influences temporal interpretation in discourse via the states it creates. In sections 4 and 5, we discuss the ramifications for discourse structure and then indicate how the hypothesis accounts for the phenomena introduced in section 2.

3.2. *Clefts and the temporal structure of discourse*

States play a distinctive role in the construction of a temporal model of the discourse. There is a close relationship between the temporal relations and discourse relations more generally; and this means that a cleft's stative aspect will affect the kinds of discourse relation that can be inferred between the content of the cleft and the existing model of the discourse. We look at the temporal model in this subsection and turn to discourse relations more generally in section 4.3.

Consider first those theories that attempt to derive the temporal structure of discourse from the syntactic structures of a sequence of input sentences. In the framework of discourse representation theory, work by Partee (1984), Kamp and Rohrer (1983), and Hinrichs (1986) has indicated that it is possible to exploit Reichenbach's (1947) notion of speech time, event time, and reference time to drive a process that will add temporal constraints to a discourse representation structure (DRS).⁴

In particular, in past-tense narrative, simple event expressions are taken to locate an event at an event time corresponding to the existing reference time, and in addition, to update the reference time to a point "just after" that reference time. This new time will constitute the reference time for the location of the next input expression. By contrast, state expressions first locate the state as *OVERLAPPING* the existing reference-time; and second do *NOT* update that reference time. Hence, the next input expression (denoting event or state) will be evaluated with respect to the same reference time again. In this way, DRS construction can encode the relative temporal locations of the various eventualities. In general, one can say that simple event expressions "move a narrative along," while

simple state expressions leave it where it is. More complex expressions, containing temporal adverbials and perfective or progressive aspect, require some complication in the DRS-construction rules.

Of course, the DRT notion of temporal overlap is a permissive relation. An event sentence such as (18) followed by an event sentence (19) describes two events, located at successive reference times. But consider what happens when we follow (18) with one or other of the sentences in (20). Each of these is stative in aspect and can be thought of as having been generated from (19) by one of the stativizing devices available in English. DRT would say that all of the sentences in (20) denote states that overlap the event already introduced. But closer examination reveals subtle differences between the kinds of states created.

(18) The police arrived at the demonstration.

(19) Mr. Butler authorised action.

- (20) a. Mr. Butler was authorising action.
 b. Mr. Butler had authorised action.
 c. Mr. Butler (usually) authorised action.
 d. It was Mr. Butler who authorised action.

(20a) has progressive aspect; instead of denoting an event, it denotes a state that is viewed in terms of a process *ONGOING* at the last reference time established by (18). For this reason, progressive states, like that in (20a), are usually taken to stretch both before and after their reference time.

(20b) has perfect aspect; like (20a), it denotes a state. The past perfect has been taken to introduce a flashback sequence, with a set of “secondary reference points” (as in Kamp and Rohrer 1983: 260). On another view, it can be seen to convert an event expression into an expression denoting the *CONSEQUENTIAL* state of an earlier occurrence of the original event (adapting the somewhat different analysis in Moens and Steedman 1987: 4). For this reason, perfect states, like that in (20b), can be considered to overlap with the current reference time and stretch back to the specific event that caused the consequent state.

(20c) can be read as a habitual; the use of *usually* encourages a reading in which, instead of denoting a single event, (20c) denotes a state. This time, the state is viewed in terms of a *DISPOSITION* to generate events of a certain type, a disposition holding at the reference time established by (18). For this reason, habitual states, like that in (20c), are usually taken to stretch both before and after the current reference time.

Finally, (20d) is clefted. Unlike (20a)–(20c), it denotes two eventualities, an event (the original eventuality) and a state (the created state). The event is one of someone authorizing action, while the state is that

of Mr. Butler being that authorizer. A complex relationship, however, is set up between the current reference time r_1 (that of the police arriving at the demonstration), the time of the authorizing event, and the period over which Mr. Butler's being the authorizer holds. Interestingly, the state of Mr. Butler's being the authorizer does seem to display the state-like behavior of overlapping a given reference time, but this reference time does not appear to be r_1 . Instead, what is overlapped seems to be the reference time of the embedded authorization event, which we can label r_2 . That is, Mr. Butler's state of being the action-authorizer overlaps the event of his authorizing the action.

Two points arise from this. The first is that, while it may seem obvious that when one is authorizing, then one is being the authorizer, what is remarkable about the cleft is that it presents the latter state as its PRIMARY eventuality — its "main message." Noncleft sentences such as (19), however, report only an event. While various states may be INFERRED from such nonclefts, including the state of something being the agent of a reported action, there is actually no reason to make such an inference. As is the case with any utterance, many additional propositions may be inferred, but these are not the primary concern of the speaker and are not induced or encouraged by the means of expression.

The second point relates to our earlier statement that the reference time that is overlapped by the cleft-created state is not the current reference time. There are various ways of looking at this. On one view, the original, presupposed eventuality can be seen as forming its own subsidiary reference time, and the created state is then related to this. In other words, the clefted authorization event acts very much like a perfective aspect "flashback sequence" in introducing a reference point at some time in the past. Establishing the relationship between the reference time of this event and the preceding discourse is a matter for inference, and we address this further in the next two sections. It is sufficient to note here that the original eventuality's reference time can be either very distant from the existing reference time — earlier or later — or identical to it. Our view is that these differences largely reflect the distinctions between the two types of cleft described in section 1.2, including the different ways in which they are integrated into the model of the current discourse.

In a discourse context, then, we can say that clefts resemble other stativizing devices, in that their main eventuality, a state, overlaps with an established reference time. In the cleft case, the reference time is that provided by original, presupposed eventuality, and the relationship between this time and the preceding discourse may be relatively close or relatively lax. Because of the stative aspect of its assertion, the cleft

sentence, like the other stative devices, does not update reference time. While other constructions involve states that are ongoing, or consequential, or dispositional, however, clefts involve states that are “existential”: the state of the element denoted by the clefted constituent BEING the element that satisfies the predicate in the presupposition.

As we have said, the DRT notion of temporal overlap is a permissive relation and does not directly capture the differences between the kinds of states encountered in natural discourses. We therefore turn in the next section to more complex models of discourse structure, which attempt to capture relationships beyond the purely temporal. We have concentrated here on syntactic devices, such as clefts and perfects, for signalling states. This is not because we believe that consequent states, for example, need to be explicitly marked as such; interpreters may indeed exploit world knowledge to interpret one eventuality as a consequence of another (cf. Lascarides and Oberlander 1993a: 17–21). Rather, it is because we maintain that the cleft’s state-making effect is central to the integration of cleft content into discourse structure and plays an important role in the explanation of the phenomena of interpretation described in section 2.

4. Discourse-structural effects

In this section, we show how clefts are integrated into structured discourse, taking into account both the aspectual considerations described above, and the two different cleft types, topic-clause and comment-clause. Given this, we go on in section 5 to discuss the backgrounding and “known-fact” effects and show how contrast, or lack of it, can be accounted for in terms of how cleft content is integrated into the discourse model.

4.1. *Theories of discourse structure*

In discourse theory, there is a consensus that discourses possess a hierarchical organization, and that we can distinguish two principal kinds of attachment of incoming discourse SEGMENTS to the existing hierarchical structure. It is generally agreed that, if a relationship exists at all between the incoming discourse segment and the existing structure, that segment can be added to the structure by either *coordination* or *subordination*. That is, the new segment may be attached either as a “sister,” at the same level in the hierarchical organization, or as a “daughter” to an existing accessible “mother” node. Moreover, it is useful to assume that

different types of *coherence relations* exist between parts of the discourse,⁵ since this seems to further specify the rhetorical function served by each segment. With respect to clefts, we wish to pursue the view that the two types of clefts share a discourse-structural description but differ on their effects on coherence relations.

Here, we use a reasonably neutral notation to describe hierarchical structure, simplified from Polanyi's (1988) discourse parse trees. We link nodes corresponding to utterances by arcs indicating hierarchical structure: in a rather obvious way, two nodes coordinate when they are sisters with a common mother; and one subordinates the other when it is its mother. Scha and Polanyi's (1988) approach is appealing because it indicates schematically how to calculate discourse structural attachment. In their framework, a plausible means of attaching incoming information into the existing hierarchical discourse structure is to attempt to match the semantic content of the information in question with that residing at currently accessible nodes in the structure. We would suggest that the content of the cleft is no exception to this, and that a sensible strategy is to match the known or identifiable information — that is, the topic of the cleft — with the existing structure. We therefore represent this explicitly in our informal notation by attaching the incoming content beneath a node labelled by that topical content, or in Scha and Polanyi's (1988: 575) terms, the *most specific common generalization* shared between the incoming and the existing information.⁶

In order to see how this works, let us look first at the integration of the content borne by each of the two types of cleft. We follow the Gundel-Hedberg view of "topic" described in section 1.2. Topical information is thus seen as information that both speaker and addressee have previous knowledge about or familiarity with, and that forms the part of the utterance that the speaker intends to increase the addressee's knowledge about, request information about, or otherwise get the addressee to take as the subject for action.

4.2. *Discourse-structural description*

First, take a topic-clause cleft such as (21). We can usefully view the topic-clause cleft as focusing attention on the question of which element plays the role described by the presupposed predicate — in this case, what element (what person) plays the role of agent in a breaking event:⁷

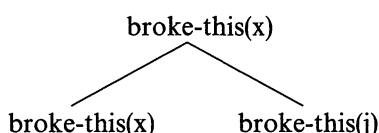
- (21) A: So who broke this?
 B: It was John who broke it.

We can build a local structure as follows. First, A's utterance in (21) will give rise to a single node in the discourse tree, as shown in (22).

- (22) Schematic discourse structure:
broke-this(x)

The topic-clause cleft with its clearly marked topical information, "Someone broke this," is matched straight away with the previous information, giving rise to a generalization that represents the shared content between the two segments, namely "someone broke this." This becomes a node that dominates the two segments, which become sisters to one another, embedded in relation to the topic node, as shown in (23).

- (23) Schematic discourse structure:



In the case of the comment-clause cleft, a similar process takes place. This time, however, the topic information is not some predicate with a missing argument, but an entity. While topic-clause clefts seem to focus on entities or elements competing for a role in a presupposed predicate, in comment-clause clefts the situation is reversed: what is focused upon is a single entity or element about which a range of possible predications can be made or are being made. We can see how a local structure for this type of cleft might be built up by looking at the Mr. Butler example again, repeated for convenience as (24).

- (24) 1. Mr. Butler, the Home Secretary, decided to meet the challenge of the "Ban-the-Bomb" demonstrators head-on.
2. Police leave was cancelled
3. and secret plans were prepared.
4. *It was Mr. Butler who authorised action which ended in 32 members of the Committee of 100 being imprisoned.*
5. The Committee's president and his wife were each jailed for a week.

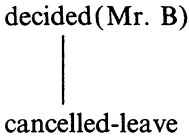
First, we build a node for Mr. Butler's original decision, as shown in (25).

- (25) Schematic discourse structure:
decided(Mr. B)

Following this, we can plausibly attach the information about "police leave" as an elaboration of this content, as it details HOW Mr. Butler

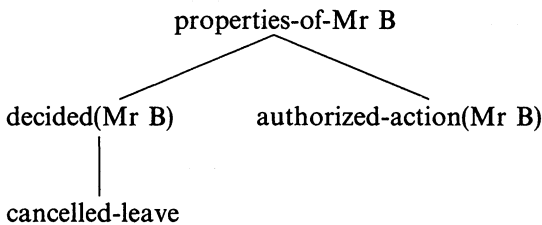
intends to meet the challenge of the demonstrators. As this information further specifies that given in the first sentence, then, we can attach it as a subordinated discourse segment, as shown in (26).

(26) Schematic discourse structure:



When we encounter the cleft sentence, for the purposes of computing *most specific common generalization*, it is necessary to match the topical information with the existing discourse tree. The topic of the cleft is *Mr. Butler*. This does not match with the information about *police leave* or *secret plans*, so it cannot attach to the most recently built node. It does, however, match with the content of the initial sentence, that regarding Mr. Butler's decision — both sentences are "about" Mr. Butler. We therefore form a node uniting the two segments under a more abstract generalization, "properties of Mr. Butler," as shown in (27).

(27) Schematic discourse structure:



4.3. Discourse coherence relations

At this stage, the structure of the discourses given above does not differ from a structure that would have been built for any incoming information with the same topic-comment structure: there is nothing special about the fact that the information has been communicated via a cleft. The effect of the cleft resides not at the level of what coordinations or subordinations can be performed, but WHAT DISCOURSE RELATIONS HOLD BETWEEN THE SEGMENTS. These differ for the two types of cleft and serve to cut down the kinds of connection that hearer-readers can infer between the incoming content and the existing tree.

It should be emphasised that coherence relations are different in kind

from the temporal relations we discussed in section 3.2. Depending on the detail of the theory, coherence relations are taken to hold between discourse segments, or propositions corresponding to them. Temporal relations, by contrast, hold between the eventualities denoted by the sentences of the discourse. There is, of course, a close relationship between these two sets of relations. In particular, various theories of discourse interpretation assume that, given certain background knowledge, if a hearer-reader knows how two segments' eventualities are temporally related, they can compute how the segments are coherence-related, and vice versa (cf. Moore and Pollack 1992; Lasarides and Asher 1993a). For current purposes, we may confine ourselves to indicating the cleft types' differing coherence structures, and temporal structures. We do not here attempt to show how one is actually computed from the other. A full processing account would indicate how text, coherence structure, and temporal structure are articulated in practice.⁸

For the moment, let us focus exclusively on discourse coherence relations. Taking topic-clause clefts first, we would suggest that two discourse relations only are available: the relations of *question-answer*⁹ and *contrast*. The question-answer relation is illustrated by (21) above. In this case, the cleft provides the completion of a segment in which, in the left-hand sister, a variable is given, and in the right-hand (clefted) segment, a value is provided for that variable. The second relation, that of contrast, is similar, except that the left- and right-hand sisters each provide COMPETING instantiations for a variable. This would be the case in a discourse such as (28):

- (28) A: Idiot.
B: It's YOU that's the idiot.

In this case, competing instantiations are provided for the variable in *idiot(x)*. Contrast results because both instantiations cannot be true at once: due to the use of the cleft, with its presupposition of uniqueness, it is indicated that there is only one possible instantiation of *idiot(x)*.¹⁰ Otherwise, it could be true that there were two idiots, and contrast would not result.

Both the contrast and the question-answer relation have in common that the topic-clause cleft provides the COMPLETION of a discourse segment, effectively closing off the dominating topic node and making it inaccessible for the building of further structure. This is because the topic dominating the cleft content and its preceding sister(s) contains a variable, which places a strong constraint on the development of the segment: it must eventually instantiate that variable. Because of the uniqueness condition conveyed by the cleft, the appearance of the cleft serves to indicate that

the cleft content provides the *SOLE* instantiation of the waiting variable. This instantiation therefore closes off the discourse segment dominated by that topic.

The comment-clause cleft acts rather differently. As we noted above and explain in more detail in section 5.1 below, the comment-clause cleft supports various kinds of *BACKGROUND* discourse relation. In addition, rather than closing off the segment to which it attaches, the comment-clause cleft leaves the node to which it attaches open for further elaboration. The reason for this relates to the fact that the content of the comment-clause cleft attaches to a topical entity, rather than to a topical proposition containing a variable. While the structure of the cleft indicates that the topic entity is unique, it does not state that it is unique with respect to any particular predicate. Given the proposed topic-comment structure for the comment-clause cleft, the comment is not a unique instantiation of an existing variable; instead it is simply an ordinary predication. It is possible to make any number of different predications about the same entity without violating the uniqueness condition. The result of this is that the comment-clause does not act as a “segment completer” like its topic-clause counterpart; it merely introduces an open-ended embedded segment. Therefore, while the gross structure of the discourse looks the same after the integration of both kinds of cleft, the nature of the development of the subsequent discourse is markedly different.

So, comment-clause clefts support various background relations, while topic-clause ones support contrast and question-answer. But in supporting these particular relations, clefts obviously do more: they *EXCLUDE* others. It has been observed elsewhere that a further important constraint on the interpretation of cleft content is that neither type of cleft can support the relation of narrative progression (cf. Delin 1989: 181). Using a cleft, therefore, indicates that the speaker does *NOT* intend a relation involving narrative progression. This is a significant constraint, since, according to some accounts, narration or listing is the discourse relation assigned by default in the absence of other information (cf. Thompson 1987; Scha and Polanyi 1988: 576; Lascarides and Asher 1993a).

5. The discourse interpretation of clefts

We have seen that topic-clause (TC) and comment-clause (CC) clefts perform different functions in discourse, and that these functions can be represented in terms of their role in discourse structure and the nature of the relations between the nodes in that structure. In this section, we

look at what it is about the structure of the clefts themselves, including their aspectual nature, that determines their interpretation in discourse.

Both TCs and CCs are, of course, presuppositional. As we described in section 3.1, any given cleft has at least one eventuality (state, event, process, and combinations of the three) that corresponds with the presupposed content, and, in addition, a state description associated with the main (copular) verb. We termed the former eventuality the *original eventuality* (OE) and contrasted it with the cleft's existential state, which we termed the *created state* (CS). The cleft in (29), for example, would yield two states: the first, glossed as (30a), is the state due to the presupposition; the second, glossed as (30b), is the state due to the copula and its associated content:

(29) It is the "lady who obliges" that can confound you.

(30) a. Original eventuality (OE):

Something can confound you.

b. Created state (CS):

The "lady who obliges" is that thing.

The key to the processing of clefts, and the discourse-structural effects outlined above, lies in the interaction of the presupposed original eventuality and the created state. On the view of Haviland and Clark (1974) and others, it is plausible to suppose that the sentence processor will first attempt to integrate content for which it is likely to find a match already in memory. Presuppositional material falls into this category, and van der Sandt and Geurts (1991) extend DRT to model this view. They characterize presuppositions as anaphora with semantic content and contrast cases in which presuppositions are "cancelled" from those in which they are "realized." Cancellation occurs when a match in memory can be found; this identification is akin to the *binding* of anaphora. Presuppositions are realized only when no match can be found, and then *accommodation* must be triggered. The processor attempts to add the material directly to the discourse context, subject to various constraints.

On their model, a sentence containing a presupposition is represented as a sentence-DRS, a triple consisting of a set of discourse markers, a set of DRS conditions, and a (possibly empty) set of sentence-DRSs. This third set corresponds to the presupposed portion of the sentence; it must be dealt with by either binding or accommodation. By extending DRT's definition of subordination, van der Sandt and Geurts define a hierarchical structure on sentence-DRSs and can thereby specify an order of priority for processing presuppositions. First, binding is attempted at a lower level in the structure; then it is tried at a higher level; next accommodation is attempted at a higher level; and finally it is tried at a

lower level. Only after the presupposition has been dealt with will the rest of the sentence be integrated into the new discourse context.

Applied to cleft sentences, the model predicts that TCs will have their presuppositions dealt with at the matching stage, whereas CCs will have theirs dealt with at the accommodation stage.

With TCs, as in (24), matching succeeds at some point or other; here, the predicate *can confound* matches the earlier *problems can arise*. In such cases, therefore, the presupposition from the cleft clause is successfully attached to the existing discourse structure first. Then, the content associated with the clefted constituent is integrated. At the temporal level, this means that OE is the first of the cleft's eventualities to be integrated. If it is an event, the reference time will thus be updated. CS, which is the main eventuality, will then be integrated; since it is a state, it will overlap with whatever reference time is current after OE's integration. And, of course, it will not itself update that reference time. The net temporal effect is that, when OE is an event, a TC cleft will update reference time once and leave CS overlapping the new time.

However, with CCs, as in the Mr. Butler case repeated in the next section, matching always fails. The cleft clause bears information that is new to the hearer and cannot be identified with earlier material. Accommodation is only guaranteed¹¹ to succeed at the last, and lowest, level in the discourse structure, and hence the presupposition from the cleft clause is accommodated with respect to the clefted constituent itself. Once this has been achieved, the latter is integrated into the discourse structure. At the temporal level, OE must first be assigned a new "subsidiary" reference time, unconnected to the existing temporal structure. The main eventuality CS, being a state, then overlaps with the subsidiary reference time. It is CS that is then related to the existing temporal structure. OE is thus only indirectly related to the larger temporal structure, via its subsidiary reference time, contained with CS. The net temporal effect is that, EVEN WHEN OE IS AN EVENT, a CC cleft will not update reference time at all. CS overlaps the prior reference time and also overlaps the reference time associated with OE. But these two reference times have no fixed relation.

There are three main points to note. First, at the temporal level, the basic difference between TC and CC is that only the former will update reference time when the original eventuality is an event. Second, given that matching content — binding presuppositions — can succeed at higher levels within the discourse structure, the content from a TC cleft can be related to nodes higher up in the discourse parse tree: TCs can thus be associated with "discourse pops," closing off prior discourse segments. By contrast, given that accommodation succeeds at the lower

levels, CC content will have less of a tendency to be associated with higher nodes or discourse popping.¹² Third, echoing the discussion in section 4.3, among CCs, we can distinguish two possible discourse effects. After the cleft has been processed, the subsidiary reference time associated with OE is available, and subsequently mentioned eventualities could progress on from it. At the discourse level, subsequent material would be seen as elaborations within an embedded discourse segment, initiated by the cleft. However, OE is not the main eventuality of the sentence; hence, by default, one would expect the discourse to continue on from the (unchanged) main reference time, which CS is known to overlap. In this case, OE would not anchor the beginning of a chain of reference times, and at the discourse level, OE would instead appear to fall into the background, with the discourse continuing directly from the point before the cleft was encountered.

The next two subsections consider backgrounding and the known-fact effect, by applying the general picture of comment-clause clefts to the data introduced in section 2.2.

5.1. *The background and regression effects*

We can now account for both Prince's observations regarding the backgrounding effect of comment-clause clefts, and our own. Recall the original data, repeated for convenience here as (31), (32), and (33):

- (31) *It is through the writings of Basil Bernstein that many social scientists have become aware of the scientific potential of sociolinguistics. ... Yet their very popularity has often deformed Bernstein's arguments; ... he has been made to say that lower class children are linguistically "deprived." ... In fact, Bernstein's views are much more complex than that. First. ...*
- (32) *Here ... were the ideas which Hitler was later to use. ... His originality lay in his being the only politician of the Right to apply them to the German scene after the First World War. It was then that the Nazi movement, alone among the nationalist and conservative parties, gained a great mass following and, having achieved this, won over the support of the Army, the President of the Republic, and ... big business — three "long-established institutions" of great power. The lessons learned in Vienna proved very useful indeed.*
- (33) 1. Mr. Butler, the Home Secretary, decided to meet the challenge of the "Ban-the-Bomb" demonstrators head-on.
 2. Police leave was cancelled
 3. and secret plans were prepared.

4. *It was Mr. Butler who authorised action which ended in 32 members of the Committee of 100 being imprisoned.*
5. The Committee's president and his wife were each jailed for a week.

Let us take Bernstein first. The cleft sentence is the first in the discourse. OE, the original eventuality, can be glossed as the perfect state "Social scientists have become aware of sociolinguistics' potential through x ." CS, the created state, may be glossed as "Basil Bernstein's writings are x ." Since OE is a state, it contains its subsidiary reference time, r_1 . On a Reichenbachian account of the perfect, an event e_1 — of social scientists becoming aware of the potential — occurred at some time t_1 prior to r_1 . CS contains r_1 and overlaps OE. We cannot directly tell what relation holds between CS and t_1 ; but, knowing the writings must generally exist in order to have effects on people's mental states, we can infer that CS also contains e_1 and t_1 . Finally, since CS does not update reference time, information from the second sentence of the discourse will overlap in time with CS also. Thus, as Prince suggests, Bernstein's influence indeed functions as background to what follows.

Now consider Hitler.¹³ This time, the cleft is not discourse-initial. In the immediately prior sentence, we are presented with a property of Hitler — his originality — which is described in terms of an event — his uniquely applying certain ideas after the First World War. On the DRT account, once this event is processed, reference time will be updated to a time r_1 just after application. OE can be glossed as the event "The Nazi movement gained a mass following at x ." CS may be glossed as "That time (then) was x ." As a simple event, OE is taken to occur at a subsidiary reference time r_2 (which here equals x). CS contains r_2 and the event OE. CS also overlaps r_1 . In fact, because *then* is a temporal anaphor, r_1 is identical to x , and hence to r_2 . Thus, the original event — of gaining a mass following — is seen to occur "just after" the event of applying ideas. This temporal proximity explains Prince's intuition that a cause-effect relation is present: we are left to infer that the one event caused the other. Notice as usual that CS does not update the main reference time, which remains r_1 , and that since CS is a state, whatever is integrated next will overlap with it.

Finally, let us turn to Mr. Butler. The cleft sentence is on the fourth line in the discourse. By this point, we have encountered one event — the decision — and two states — leave cancellation and plan preparation. The reference time is r_1 , just after the decision event, and contained within the two overlapping states. OE can be glossed as "Some entity x authorized action which ended in various people being imprisoned." CS

may be glossed as “Mr. Butler being x .” Since OE is a simple event, it can be taken to occur at a subsidiary reference time r_2 . Being a state, CS contains OE and r_2 , overlaps r_1 , and does not update the main reference time. Whereas with the Hitler case, we could easily compute the relation between r_1 and r_2 , here we have less information. However, the state of Mr. Butler’s being the authorizer must have been initiated by an authorization event, at the initial bound t_3 of state CS, and the event could therefore have occurred before r_1 : the authorization event *PRECEDES* the decision event mentioned earlier. This explains why there is a feeling of “temporal regression” and the associated removal from the main time line; further world knowledge would be required to find a more specific location for Mr. Butler’s action. Note in addition that we also have here a case in which the sentence *AFTER* the cleft ([33], line 5) appears not to revert to the main narrative line (established by lines 1–3), but to continue instead with the subsidiary reference time established by OE in the cleft sentence at line 4. Given the content of line 5, we might infer that the authorization event occurred sufficiently far in the past for various legal formalities to have been run through.

Thus, the Bernstein, Hitler, and Butler cases in (32), (32), and (33) have subtly differing temporal structures. We observed in section 4.3 that discourse processing can exploit such temporal information to determine which discourse coherence relations hold between discourse segments; we also suggested that comment-clause clefts supported “various” backgrounding discourse relations. We may now ask whether the differing temporal structures assigned to our data will actually lead to differing coherence relations. In fact, the answer to this question depends upon the precise granularity of a theory of discourse coherence. In a theory with many discourse relations (such as Mann and Thompson 1987), the temporal differences here may well lead to different coherence relations for the discourses. But in a theory with relatively few (such as Hobbs 1985), the differences may not be apparent at the discourse coherence level. On at least one Hobbsian account (due to Lascarides and Asher 1993a: 465–466), in the absence of information to the contrary, once we have established that two clauses denote overlapping states, we can directly establish that the clauses are connected by the (single) background discourse relation.

However, without committing ourselves to one or other theory, we cannot give a final answer to the question. In the meantime, it suffices to note the following. The Bernstein case introduces a state that overlaps with whatever eventuality follows it; at a discourse level the cleft sentence may therefore evoke discourse-initial background to subsequent sentences. The Hitler case closely juxtaposes two events, of which the former

can be inferred to cause the latter; at a discourse level, the cleft may therefore evoke a result of the previous sentence. The Butler case “flashes back” the reader, creating a mini-time line; at a discourse level, the cleft may therefore evoke prior background to the current narrative thread.

The significance of fixing upon one discourse relation rather than another is perhaps most easily appreciated by considering the DIFFERENCE in the discourse relations evoked by a cleft, as opposed to its canonical counterpart. Let us therefore conclude this discussion of comment-clause clefts by considering why “declefting” can have variable effects on CCs. Substituting a noncleft for a cleft seems often to disrupt the meaning of the discourse. The reason lies in the loss of the created state by means of which content is integrated. What remains is very similar to the original eventuality (state, event, or process), and this can give the impression that the speaker-writer is introducing a new event into the discourse and updating it in the relevant ways. By contrast, in the clefted versions, any events introduced by the created state itself are either implicit or identifiable in the previous context. Safe declefting must therefore involve the preservation of the stative aspect of the relevant cleft sentence; replacement with a perfect declefted sentence should normally suffice.

Notice, however, that where the declefted sentence is already stative, declefting should not disrupt the coherence of the narrative so severely. But even in these cases an *it*-cleft still performs a significant function, because it denotes not one state, but two, and can in this way serve to restrict discourse relations. Consider the invented examples (34) and (35):

(34) Victoria turned over the body. *She knew the killer's identity.*

(35) Victoria turned over the body. *It was she who knew the killer's identity.*

As we suggested in section 3.2, where world knowledge permits, we will interpret a state described after an event not as overlapping with the described event, but as being initiated by it. So here, it is natural to say that the second eventuality in (34) is a causal result of the first: Victoria came to know the killer's identity on account of her turning over the body. However, the use of a cleft in (35), while not altering the already stative aspect of the sentence, introduces an extra state. In both cases, after integrating *Victoria turned over the body*, we have a reference time r_1 , just after the turning-over event. And in both cases, we may roughly say that OE is the state of knowing the killer's identity. Now, in (34), OE overlaps r_1 and is potentially initiated by the prior event. But in (35), OE overlaps its own subsidiary reference time r_2 , which is contained in CS. CS in turn overlaps r_1 ; but now we have no direct relation between r_1 and r_2 . In the latter case, it's still true that Victoria knows the killer's

identity; but it no longer seems as if she knows this because she just turned over the body.

In the Hitler case, as Prince (1978: 902) argued, a comment-clause cleft seems to create a cause-and-effect reading. Here, however, a comment-clause cleft seems capable of effectively deleting such a reading: through its extra state, it blocks an otherwise feasible discourse relation, such as narration or result. The declefted discourse in (34) is still coherent, but it will possess a different interpretation, on account of its different configuration of discourse relations, and the form of narrative progression that follows from them. What this goes to show, of course, is that when a cleft is used in a sentence that would be stative even without it, it can still be performing pragmatic work, by virtue of its restriction on possible discourse relations.

5.2. *The known-fact effect*

We can now turn to the explanation of the known-fact effect. As we noted earlier, Prince (1978) proposed that what the various clefts had in common was that they marked a piece of information as fact, known to some people, but not necessarily to the hearer. By indicating that they do not accept responsibility for the truth of the statement, the speaker at once denies that they are the “informational origin” and makes it clear that the validity of the statement is nonnegotiable. We have argued that the known-fact effect occurs only in comment-clause clefts. We would like to suggest that the aspectual effect of the cleft helps explain it in the following way.

Given some arbitrary piece of information to transmit, a speaker-writer can choose between using event, process, and state expressions to convey it. Each choice emphasizes different aspects of the information, by choosing what to make explicit, and what to leave implicit. When the speaker uses an event expression, they are explicitly referring to an event, but also implicitly introducing the state that results from the occurrence of the event, if such a state exists. Equally, when a speaker uses a state expression, they explicitly refer to a state but also implicitly introduce two further events; the beginning and ending of that state. Now, Lascarides and Oberlander (1993a: 22) suggest that if there is no “explicit” indication of where a state starts — via the mention of causes or the use of temporal adverbials — then the exact starting point of the state can be assumed to be irrelevant. Thus, conversely, if the speaker deems the exact start of the state to be irrelevant to the discourse in this sense, then they can use a state expression.

An *it*-cleft introduces two eventualities: the original eventuality (either an event or a state). The latter is denoted by the main verb, and it is the cleft sentence's main message. While it is true that the original eventuality might have initiated the created state, it is the latter's temporal location in the discourse that is taken to be most important. Consider once again the Mr. Butler case, from (33). The original eventuality was the event "Some entity x authorized action which ended in various people being imprisoned"; the created state was "Mr. Butler being x ." Of course, the latter came into being because of the former; but it's the state that is the main point of the utterance, the event being presupposed. The state is directly related to the current discourse reference time; the event is linked to the discourse only via its relation to the state.

Such a cleft is therefore a natural choice for a speaker who wishes simply to assert that an eventuality is current at the reference time, without indicating anything further about it. So clefts can deliver information that might otherwise have been stated earlier without disrupting the flow of the discourse (cf. Polanyi's [1986: 85–87] "true starts"); and they can also deliver information without commitment to the exact temporal location of an initiating event.

5.3. *Toward an account of contrast*

Finally, the account just outlined also gives us an explanation for the topic-clause cleft's contrastive behavior. As we noted earlier, contrast is a coherent relationship based on finding the current topic and matching it with some proposition from earlier in the discourse that shares the same topic: put simply, what seems to be required for contrast is some comparison, discussion, or dispute about the applicability of a shared predicate P to each of the contrasting elements. In order to retrieve a contrastive relationship, the predicate in the contrasting sentence must be linked up with the previous occurrence of P predicated of the contrastive antecedent. But this predicate is simply the shared topic of the current sentence and the sentence in which the contrastive antecedent lies. Hence, retrieving the contrast relation is therefore a matter of finding the topic of the current sentence and matching it with some preceding utterance that shares the same topic. In cases where this topic-matching fails, the contrast relation will not be retrieved.

Of course, the topic-matching process relies in many cases on the correct interpretation of the discourse structure, and we saw in section 4.3 above how the discourse structure for contrastive clefts might be built up. The contrastive sentence reaches back into the discourse and com-

pletes a relationship with the antecedent contrastive segment — the one that introduces the topical predicate along which contrast operates. These two segments are then sisters, dominated by their shared topic node. The first sister encodes a negative example of the topic: that is, something that is NOT a suitable instantiation of the missing argument in the topic. The second sister, the content of the cleft, represents the correct instantiation. When the topic on the basis of which the contrast is to operate is highly salient and highly accessible, it is often sufficient to indicate, by explicit repetition, by prosody, or by both, the topic to which the incoming segment is to be attached. This accounts for the acceptability of the decleft of example (36) given in section 2.1, repeated here with its declefted counterpart:

- (36) To this the reply is given that from the verse dealing with Boaz there is no proof of divine approval, only that Boaz used this form of greeting. But in the second verse *it is the angel that uses this form of greeting* and hence there is evidence of divine approval.
- (37) To this the reply is given that from the verse dealing with Boaz there is no proof of divine approval, only that Boaz used this form of greeting. But in the second verse *the angel uses this form of greeting* and hence there is evidence of divine approval.

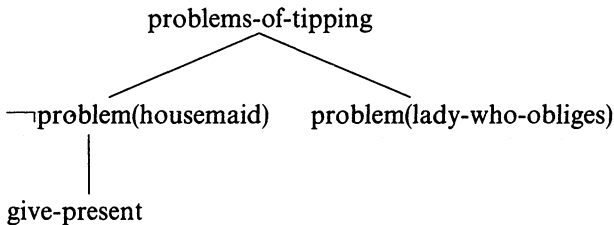
In many cases, however, locating the correct attachment point for the incoming segment is not so simple, and it is here that clefts can support contrastive relationships that are not so clear from the corresponding noncleft. There are two particular contexts in which this is true: where the antecedent topic is remote in the discourse structure, and when the topic of the cleft, for reasons of economy or variety of expression, does not clearly cospecify with any previously occurring topic, leading to the need to infer the relevant relationship on the basis of generalizations made about the topic identified in the cleft. If clefts appearing in either situation are declefted, a systematic and predictable misinterpretation of the structure of the discourse takes place — we would argue, due to the loss of the aspectual information provided by the cleft that prompts the search for an antecedent.

As Scott and de Souza (1990: 53) suggest, “the greater the amount of intervening text between the propositions of a relation, the more difficult it will be to reconstruct its message.” Intervening text, however it is itself related to the discourse tree, increases the difficulty involved in matching the contrastive topic to its required antecedent. A case of textual distance between a cleft and its contrastive antecedent is represented by (38), repeated from section 2.1. Note again the infelicity of the declefted (39):

- (38) Quite a few of you have asked about tipping, and these days problems can arise. A nice old-fashioned housemaid, labelled by cap and apron, is easy enough; when you leave you will give her your little present as a thankyou for looking after you. *It is the "lady who obliges" that can confound you*; on that point, the simplest way is to quietly consult your hostess.
- (39) Quite a few of you have asked about tipping, and these days problems can arise. A nice old-fashioned housemaid, labelled by cap and apron, is easy enough; when you leave you will give her your little present as a thankyou for looking after you. *The "lady who obliges" can confound you*; on that point, the simplest way is to quietly consult your hostess.

In the discourse, the topic is stated explicitly: we can frame it as *problems of tipping*. Then follows the statement *a housemaid ... is easy enough*, which, by analogy with the discussion of the discourse structure of contrasting pairs given above, acts as a nonexample of the topic (i.e. housemaids do not constitute the problem given in the topic) and the left-hand sister of the contrastive pair. Then follows an *elaboration* on the housemaids topic, how you tip her when you leave. This can be seen as subordinated to the left-hand contrastive sister, as shown in (40).

- (40) Schematic discourse structure:



The cleft finally provides the positive instantiation of the topic: a situation that is a tipping problem. However, by this point in the discourse structure, there is an ambiguity as to where to attach this incoming segment. Should it be attached to the topmost topic node, or to the more recent elaboration about *your little present*, by either coordination or subordination? We suggest that, since this node is both lower and more recent, it represents a more salient attachment point for incoming information. Without the cleft, as in (39), this is the attachment point chosen. The result is that no match is made between the decleft topic and the preceding discourse: the contribution of the decleft is interpreted as a new eventuality, to be inferably related as some kind of narrative addition to the most recent information. As a result, no cospecification is perceived

between the decleft topic and any antecedent.¹⁴ When the cleft is missing, discourse advancement is the default. While it is a matter of the content of the individual proposition what attachment is actually made, it seems likely that the incoming segment will be interpreted as a new thematic development — that is, it is likely to be given some default attachment more appropriate to narrative progression.¹⁵

6. Summary and conclusions

In this paper, we have tried to bring together a number of observations about clefts in order to account for their disparate discourse functions. We began with the observation that there are two major cleft types, and that these are differentiated in function: clefts of the topic-clause type seem to be confined to the functions of question–answer and contrast, while comment-clause clefts appear to support various background relations, of which cause and effect and temporal regression are two subtypes. Furthermore, as Prince (1978) suggests, clefts share the property of indicating that the information they convey is in some sense “known fact.” We take the view that these functions are appropriately characterized in terms of discourse relations between incoming content and the existing model of the discourse.

The account we have presented captures the features common to clefts of both types, while also taking into account the factors that differentiate the interpretation of the two cleft types. One common factor is that clefts convey an additional state description due to the copular verb: we drew on theories of aspectual semantics to capture the processing implications of this. The second common factor is that clefts are presuppositional, and that presuppositions are processed differently from asserted material. The implications of presupposition and stative aspect for integration of cleft content could not be fully explored, however, without taking into account the role of information structure. In our account, the latter is characterized in terms of the topic–comment structure of clefts, and it is here that the source of variability in cleft interpretation lies. In order to account for the differing interpretations of topic-clause and comment-clause clefts, then, we drew upon van der Sandt and Geurts’s (1991) account of presupposition integration, which allowed us to differentiate between new (comment) and old (topic) presupposed information. The final piece of the puzzle comes once again from aspectual semantics: we showed that information structure also influences the relationship that is assumed to hold between the presupposed eventuality borne by the cleft

and the state created by its copula. This results in differing discourse interpretations for sentences with different information structure.

We have suggested, then, that presupposition, information structure, and the semantics of aspect, through their influence on discourse processing, lead to predictable effects. We have not, however, been able to offer a complete account of the relationships between discourse relations and temporal information in discourse processing. One obvious next step, therefore, is to embed our analysis within a formal discourse-processing framework, organizing the rather eclectic range of representations adopted in our account into a more integrated whole. In addition, it would be interesting to extend the approach to other syntactic constructions where a similar distinction in information structure and discourse function has been observed: for example, Ward's (1985) preposing constructions. Further, we might wish to look more closely at the position of clefts within the broader range of copular constructions, examining the implications of our account for other cleft and cleftlike constructions. We have not, for example, addressed the fact that clefts can be further differentiated in semantic terms by means of predicational and specificational function: our examples are purely specificational. This distinction appears to be relevant for copular constructions of all kinds and could provide an appropriate vehicle for extending the treatment beyond the well-known kinds of *it*-cleft dealt with here.

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1. Available through the Norwegian Computing Centre for the Humanities: e-mail icame@hd.uib.no.
2. A separation between presupposition and information status for clefts is suggested by Prince (1978) and argued for in detail in Delin (i.p.).
3. See Vendler (1967), Hinrichs (1986), Dowty (1986), and Moens and Steedman (1987) for detailed analyses of these "aspectual types."
4. We do not wish to maintain that a reference-time-based account is the best that can be provided. It is, however, a convenient representational tool.

5. Of course, the debate on what coherence relations are in general, and which types are relevant in particular, is by no means concluded: compare the differing descriptions of relations in Grosz and Sidner (1986), Hobbs (1985), Mann and Thompson (1987), and Moore and Pollack (1992), for example.
6. This view is compatible with approaches in the psycholinguistic literature, in which incoming information is parsed into given and new components, given information being attached to the existing structure first (cf. Haviland and Clark 1974; Clark and Haviland 1977).
7. Here, the content of the incoming cleft integrates smoothly with the existing discourse model, since no contradiction is involved. However, in dialogue, this type of cleft is frequently used to challenge existing content: for example, *It was John who broke it* could be a response to the assertion *Max broke it*. In this case, the uniqueness condition conveyed by the cleft would result in mutual exclusivity between the two propositions, and inference would have to be carried out to decide which proposition was to be maintained, and which discarded. It is assumed that truth maintainance would be carried out on the integration of any information, regardless of its syntactic vehicle.
8. A promising approach would be to parallel the models constructed for the discourse effects of temporal connectives (Lascarides and Oberlander 1993b) and perfective aspect (Lascarides and Asher 1993b).
9. It has been suggested (cf. van Kuppevelt 1991, *inter alia*) that cleft sentences serve to answer implicit questions in discourse, and that this is a major part of their function. We would argue that this appears to be a legitimate proposal for topic-clause clefts, but its unlikelihood for the content of comment-clause clefts highlights the suggestion as having its basis not in syntax, but in information structure.
10. It might be suggested here that the uniqueness presupposition is due not to the cleft structure but to the presence of the definite referring expression *the idiot*, which is of course itself presuppositional. Note, however, that the uniqueness presupposition would still hold even if the example were *It's you that's an idiot*.
11. Subject, of course, to considerations of consistency and likeliness.
12. Of course, we indicated in section 4.2 that there is, in principle, no reason why individual CCs and TCs should not share discourse structural descriptions.
13. Notice that with this case, we can take the clefted constituent to have "scope" over a conjunction forming a complex cleft clause. It is simpler, however, to take the sentence as a whole to conjoin a simple cleft sentence with a set of (elliptical) clauses. We thus pursue the latter option, but the example can be appropriately reanalyzed given the former option.
14. There are clear links here to the notion that presuppositional environments like the cleft clause are ANAPHORIC, regardless of the information status (given, new, inferrable etc.) of their content. This was first suggested by van der Sandt (1989) and is explored more fully for *it*-clefts by Delin (1992).
15. The general consensus is that this is the default attachment node, in keeping with theory in other areas of discourse processing in which "low right attachment" is favored. See for example Polanyi (1988: 619), who attributes low right discourse attachment to Reichman (1978). Of course, in some cases, the default attachment will fortuitously be the correct one, in which case contrast (and any other coherence relation in which the cleft is involved) will not disappear.

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